Review of Accounting Studies (2024) 29:3019–3052
https://doi.org/10.1007/s11142-023-09775-8

Startups' demand for accounting expertise: evidence from a randomized field experiment

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Accepted: 13 May 2023 / Published online: 30 June 2023

Abstract

We conduct a randomized field experiment (RFE) to assess whether startup firms perceive accounting expertise as an important investor credential. We send 13,358 unsolicited and unique emails to active startup firms across the US, showing an interest in them with a proposition to meet a bogus investor. The experiment has high response rates, with 4,535 (33.94%) opened emails and 828 (6.19%) website visits, reflecting investors' proliferating practice of outbound origination to contact new startups. Our RFE compares startup reactions to fictitious investors with certified public accountant (CPA) designations versus two control groups: investors without credentials and those with other professional licenses. Startup firms are 48% likelier to read unsolicited emails from CPA-bearing investors and 47% likelier to visit their websites, relative to investors with a medical license. We document an analogous preference for CPA-bearing investors even when we separately analyze startups in medical-related industries. This gap persists when investors pose as angels, venture capitalists (VCs), or without professional licenses. The relatively low percentage (2.5%) of email bounces and spam reports makes it unlikely that spam algorithms drive the findings. Further tests reveal that the response rates differ by firm age, which is inconsistent with spam filter explanations but congruent with startup firms' demand for accounting expertise. Finally, we undertake a follow-up experiment with 3,443 new startups to distinguish between accounting and general business expertise using a master's in business administration (MBA). Startups are 13.8% likelier to read emails from a CPA-bearing investor than from an MBA-credentialed investor and 22.6% more likely to visit the CPA-bearing investor's website.

Keywords Accountants · Auditors · Accounting demand · Auditing · Investor expertise

JEL Codes M41 · M42 · G24 · M13

IRB Approval : The Institutional Review Board (IRB) of the National University of Singapore (NUS) approved the randomized field experiment under S-20-099.

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1 Introduction

Practitioners express growing concerns about the declining demand for the expertise of certified public accountants (i.e., Najjar, 2019; Wong, 2020). Prior research indicates that investors historically care about accounting licenses held by directors and managers. De Fond et al., (2005) report that stock investors historically valued accounting expertise on the board of directors. Anderson et al., (2004) suggest that debt holders require lower yields in firms with more significant accounting expertise on the board. Vafaes (2005) observes that investors value financial controllers with accounting expertise. More generally, corporate outsiders and investors seem to value accounting expertise inside the firm (Bai, 2015). Yet it is unclear whether firms value the accounting expertise investors provide.

Investor expertise is especially relevant in the startup ecosystem because investors provide advice, mentoring, and external validity to the founding team (Bernstein et al., 2020). Bottazzi et al., (2008) observe that relevant venture capitalist credentials seem to center on the venture capitalists' funding experience, management expertise, and scientific education. Yet CPA licenses are arguably much more appropriate for large corporations with sophisticated accounting systems than for small startups that may not even have accounting and control systems in place (Sandino, 2007). Moreover, Govindarajan et al., (2018) note that financial statements and accounting earnings are irrelevant for technology startups because intangible investments form the firms' performance building blocks. Arguably, the venture capital arena provides one of the more stringent laboratories for investigating whether firm owners and managers care about the accounting expertise of potential investors.

In this study, we examine whether startup firms welcome the knowledge and expertise of accountants as part of their relatively small investor bases. We conduct a randomized field experiment (RFE) to investigate this issue, garnering startup firms' attention and desire to communicate with fictitious investors. We send 13,358 unsolicited and unique emails to active startup firms across the US, indicating interest in them with a proposition to meet a bogus investor. Unsolicited email communications for potential business, generated from both the startups' and investors' directions, are now widely used in the venture sector (Seibel, 2019; Willson, 2018). By varying the emails based on professional accreditation and investment fund type, our analysis isolates the marginal impact of each investor characteristic on the startup's propensity to pay attention to our fictitious emails.

Our RFE design allows us to study the recipient's decision to view the email in their mailbox, thus documenting their implicit bias. We also record their decision to click on the hyperlink at the bottom of the email that directs them to our fictitious investors' website, allowing us to record explicit preferences across different investor characteristics. The initial email prominently displays the investor's professional credentials (if any). We randomly assign characteristics to the purported email sender and measure the response rate to each characteristic. In particular, we compare emails sent by investors with CPAs to emails sent by either identical non-license-bearing investors or those with medical doctor accreditation (MD). The latter delivers a useful counterfactual, as it signals affluence and accomplishment that is agnostic of commercial experience. Both CPA and MD accreditations

signify educational, professional, and licensed attainment, offsetting the broad "professional" signal and isolating the more nuanced aspect of CPAs' expertise.

We compute how many of the startup recipients open the unsolicited emails and how many visit the respective investors' websites. Of the 13,358 successfully delivered emails to startups' listed email accounts, 4,535, or 33.94%, were opened. From these opened emails, 828 startups, or 6.19% of the respondent sample, also visited the investor's website through the link provided in the email. These are reasonably high response rates relative to other field experiments employing unsolicited contacts. The high response rates coincide with recent trade press discussions about angels and venture capitalists using unsolicited emails (outbound origination) to contact new startups (e.g., Brown 2019; Hemmes, 2020).

Despite our practice of using control groups with other professional licenses or without licenses, one potential worry about our experimental setting is that the algorithms employed by popular email programs are biased in favor of CPAs. Using a naïve filtering rule that is based on a professional license being included in the email seems unproductive, as hackers and spammers could easily bypass it. Nevertheless, we undertake two sets of analyses to gauge whether we should be concerned about the effects of spam filters on our experiment. First, we record the number of emails rejected for each email campaign with CPA and non-CPA investors. In addition, we also register the number of email recipients who flag each investor's emails as spam. Our experiments have "bounced" and "spam" rates of less than 2.5% across all our experimental cases. These relatively low rejection rates make it unlikely that spam filters drive our results. Second, we examine whether the response rates differ across the startups' years of incorporation. Suppose Google created a CPA-biased spam filter in Gmail; this bias and the resulting response rates in our experiment should be unrelated to a startup's year of incorporation. We find a substantial variation in open rates, with a significant increase in the rates by startup year of incorporation, which is inconsistent with the spam filter concern.

In comparing the response differentials to our fictitious CPA and MD investors, we observe widespread evidence of both implicit and explicit preferences for CPA investors. Specifically, we find that startups are 48% more likely to view or open an email from a fictitious CPA investor than from a fictitious MD investor. Moreover, the decision to visit the investor's website for additional information—a more involved choice—provides a similarly stark pattern of explicit preference for CPAs. Specifically, we find that startups are 47% more likely to visit a fictitious CPA investor's website than a fictitious MD investor's. These numbers indicate that startups exhibit a substantial preference for accounting expertise relative to other affluent and highly educated benefactors in early-stage, outbound originations.

One potential interpretation of this preference is that email recipients make a private spam determination based on the CPA moniker (a form of statistical bias in favor of accountants). On the other hand, startups in medical-related industries could consider the MD moniker a plausible reason why the investor targeted their startup for outbound origination, allowing us to test this potential interpretation directly. More specifically, we ask whether industry-specific knowledge helps overcome the gap between CPAs and MDs. We separately analyze our field experiment results for startups in medical-related industries (including

pharmaceuticals, health care, medical devices, health diagnostics, and dietary supplements). Even startups in medical-related industries are 50% more likely to view a CPA investor's email than an MD investor's email, and they are 19% more likely to visit the CPA investor's website. These findings indicate that startups opt for accounting expertise even in medical-oriented industries, demonstrating that the potential investor's specialized industry knowledge does not overpower startups' preference for accountants as investors.

We also explore the potential channel in which founders value the professional network of the CPA investor instead of the accounting expertise. We separate our results based on investor affiliation (angel or venture capitalist (VC)) to shed light on this issue. Angel investors are primarily avocational, high-net-worth individuals investing in their own accounts. Venture capitalists are typically professional intermediaries. More importantly, managing a fund composed mainly of other people's money entails establishing sufficient experience and business networks to justify their clients' trust. Suppose the CPA certification serves as a proxy for network access rather than merely a symbol of accounting expertise. In that case, the preference for CPAs should be more pronounced among angel investors than among VC investors. We, therefore, empirically examine whether there is a distinction between these investor types in the eyes of startups and whether it affects the demand for accounting expertise.

After dividing our sample into those receiving emails from fictitious angel investors versus fictitious VC investors, we find that investors with a CPA designation receive greater attention regardless of investor affiliation. Interestingly, the excess probability ratios are much higher for the CPA designation than for the MD designation in the sample of VC-related investors: 0.76 for email views and 0.96 for website visits. The startups' response rate for CPAs almost doubles their response rate for MDs in the VC sample, illustrating the added appeal of accounting expertise when the unsolicited funding offer comes from investors affiliated with a VC. As VC investors are also commonly perceived as being more involved in the firm's operations than angels, the strong preference for VC investors with a CPA suggests that startups appreciate the relevance of accounting expertise in their decision-making process.

Based on the premise that experienced entrepreneurs, having gained their own commercial experience and more comprehensive professional networks, differ in their taste for investor characteristics, we look closely at serial founders. We divide our sample into three mutually exclusive groups to assess the differential effect of investors' licenses on firms with past entrepreneurial experience. The first group includes (a) firms with no serial founders. The remaining firms have at least one serial founder—an individual who founded at least two firms recorded in our dataset. We separate firms with a serial founder into two groups: (b) those that are the serial founder's first project in our dataset, and (c) those that are the serial founder's second (or a subsequent) project.

We observe an interesting general pattern: repeat entrepreneurs on their second and subsequent projects are more likely to view unsolicited emails and visit the investors' websites. Their more positive response to outbound origination by angel investors and venture capitalists is consistent with seasoned founders having a better understanding of the scarcity of early-stage funding. We also observe that CPA

investors attract a higher rate of email views and website visits regardless of the founding team's experience. Serial founders with additional entrepreneurial experience become slightly less likely to value investors' perceived accounting expertise. However, they still show a strong preference for CPA investors, with excess probability ratios favoring the CPA over the MD designation of 42% for email views and 32% for website visits.

Although we use the email addresses provided by startups to attract potential investors, another potential concern regards the actual identity of the respondent—specifically, whether the individual receiving our fictitious investors' email is authorized to make crucial decisions on the startup's behalf. This distinction is relevant for the validity of our experiment; therefore, we undertake a separate analysis to explore it. We evaluate the subset of startups that respond to the unsolicited email by directly contacting our fictitious investors. For each corresponding individual, we search online (on their company's website, LinkedIn, etc.) to confirm their identity. We also note that around 90% of the messages we received are positive—typically expressing interest in our bogus investors, seeking to set up a meeting with us (online or face-to-face), and offering us their pitch deck.

Our primary tests compare CPAs to MDs to isolate the effect of accounting expertise relative to a general professional capacity. Although the healthcare-subsample test compares business-specific expertise (of MD holders) to accounting proficiency (of CPA holders), it does not capture startups' attitudes towards broad-business expertise. We develop an additional experimental framework with a different comparison group to capture the marginal difference between accounting expertise and broader and more general business exposure: investors with an MBA. While a typical MBA program provides general business training as well as some exposure to accounting, it differs substantially from the in-depth accounting knowledge of a CPA. We conduct a follow-up experiment using 3,443 young startups recently added to the Crunchbase dataset, with a higher email open rate of 49.3%. This follow-up experiment reveals higher response rates—a 13.8% higher read rate and a 22.6% higher visit rate—for CPA holders relative to MBA holders.

Taken together, our results highlight a preference for CPAs and shed light on the premium enjoyed by CPA investors. The taste for professional investors with ample business knowledge comes with higher monitoring capabilities. A recent study shows that venture capitalists occupy a board seat in 43.9% of their firms (Amornsiripanitch et al., 2019). Our findings suggest that in evaluating the tradeoff between investors with accounting expertise and other wealthy benefactors, startups prefer active investors capable of contributing their accounting expertise for the firm's benefit.

Our research makes three contributions to the literature. First, the results speak to the future value of a CPA certificate. Scholars long viewed accountants as an essential component of a healthy economy (Choi and Meek, 2008). Recently, however, practitioners have raised concerns about the profession's prospects (Rozario and Vasarhelyi, 2018). In examining founders' perception of accountants as potential investors, this study finds strong demand for stakeholders with accounting expertise, even in an area not generally associated with accounting. We provide novel evidence indicating that founders of high-tech startups, all things equal, prefer investors with not just a professional license or general business expertise but precisely that which

communicates accounting expertise. Perhaps especially interesting is that our sample comprises high-tech startup companies, where technological disruptions seem inevitable.

Second, our analysis helps us understand what type of role founders expect investors to play. Asking what sort of demand there is for different types of investors' backgrounds is essential, particularly in a playing field with relatively low entry barriers aside from capital. Which characteristics are common among successful venture capitalists? What makes a founder-investor pair synergetic? Previous work in this space often centers on investors' reputations (Sørensen, 2007), available networks (Hochberg et al., 2007), and physical proximity to the startup (Chen et al., 2010) as the most important considerations. Our research contributes to this literature by exploring investors' experience and expertise in commercial ventures as an essential ingredient in the founder's utility function while on the market for private equity.

Third, our research design adds to the arsenal of causal techniques and serves as a novel method for future research. Accounting scholarship boasts a rich history of experimental research dating back at least 50 years, conducted mainly in a controlled lab setting, with professionals or students engaged as test subjects (Kachelmeier, 2020). Field experiments offer a unique opportunity to document an agent's decisions in a real-life setting, making it a powerful tool that allows the teasing out of causal inferences that can be generalized more easily to current industry and market participants (List, 2011; Floyd and List, 2016). This approach also allows for exposing the test subject to a different array of information at a more nuanced level. However, in their survey of 1,638 articles published in four prominent accounting journals (the *Journal of Accounting Research*, the *Accounting Review*, the *Journal of Accounting and Economics*, and *Accounting, Organizations, and Society*) from 2003 to 2013, Bloomfield et al., (2016) identify only two papers that used field experiment data. Abernethy and Campbell, (2018) survey the managerial accounting literature since 2010, finding only three field experiment studies. While field experiments often involve deception, they typically cannot track the recipients' view rate, capturing only the recipients' action and not attention; our experimental design captures both attention and action. Moreover, our experimental design imposes relatively low costs on test subjects because it does not solicit details or require time-consuming responses.

2 Prediction development

2.1 Founder-investor – an odd marriage

Financing rounds serve to pair startups with funding investors in a matching exercise. Investors pick projects based on their perceived post-money valuation, whereas founders rank investors by contributing funds, contacts, and expertise. For example, when different investors offer the same level of capital for a similar amount of equity, founders face a crucial tradeoff. On the one hand, they want to be subjected to as little oversight as possible, allowing them to follow their vision with the least resistance possible. On the other hand, investors with specialized knowledge add their expertise to the firm's human capital.

Given CPAs' financial knowledge, it is easy to imagine founders perceiving them as experts in analyzing and advising business operations. Alternatively, startups may view CPAs as possessing outdated and redundant expertise. In this scenario, it seems unlikely that startups would value CPAs' expertise when considering funding offers from competing investors.

2.2 Investors' professional background

Yet comparing investors with and without professional certifications could overstate the value of accounting expertise among investors. Investors with a CPA license signal their dedication and broad skills as necessary to enter into a profession. A CPA license signals a demonstrable ability to decipher related financial information, which can be related to a more comprehensive commercial experience. Therefore, we need to control for the public's more generic perception of high human capital for all licensed professionals. To find the added effect that a CPA has on an investor, it is necessary to compare startups' response rate to a CPA against their response rate to a comparable license with more agnostic information regarding accounting expertise or commercial experience.

We compare the CPA license with an MD to tease out the commercial expertise component from the broader, human-capital quality element. This contrasts an investor with a professional license with another whose professional success requires understanding enterprises or mercantile intuition. Both professional licenses require long journeys: eight years of post-tertiary education (not including any follow-up residency or additional training) for an MD degree, and an average of seven years for a CPA. To obtain the CPA license, a candidate would start with 150 academic college credits (often completed in five years of college or a master's program), obtain relevant work experience in the accounting field for an average of two years (depending on the state), and pass a four-series exam during that period (AICPA & CIMA 2021).

Crucial for this comparison across licenses is society's attitude towards MD accreditation. Even if the MD license is potentially silent regarding the holder's background in business, the general population deems it an essential, sought-after license that speaks to the holder's capabilities. In particular, broader society perceives medical doctors as generally bright and accomplished professionals. Thus, it is highly likely that they consider MD holders to be as intellectually capable as their CPA counterparts, albeit lacking commercial experience (when startups compare them as potential investor candidates). Additionally, MD holders may be preferable if founders, all things equal, prefer meek investors or, at the very least, those that are friendly and prone to lax screening (Adams and Ferreira, 2007; Schmidt, 2015), in line with literature discussing the role that private benefits play in managers' decision making. Comparing CPA versus MD allows us to tease out the marginal impact of the accounting experience component within the broader CPA license. We, therefore, formulate our first hypothesis:

H1: Unsolicited emails from a CPA investor garner views and website visits at a higher rate than unsolicited emails from an MD investor.

2.3 Conditioning on investor types

Two sets of rounds characterize early-stage capital financing: early (often referred to as "seed") rounds, followed by "lettered" rounds. Seed investments occur in the startup's infancy stage and are predominantly carried out by direct investors (angels). It seems plausible to think that startups will regard an angel investor who brings accounting expertise as a more relevant asset in this context, as young enterprises often lack business know-how. The CPA certification could also serve as a proxy of the investor's network, potentially making the CPA effect more pronounced among angel investors. On the other hand, these young firms are imaginably cash-starved; therefore, they could be more attentive to unsolicited financing proposals and less likely to differentiate among them. Moreover, an angel investor's traditional role rarely extends past cash infusion. Most angel investors are affluent individuals looking for opportunities in the private equity space (Robinson 2019).

In contrast, lettered rounds or startups at a post-seed stage are typically dominated by VCs, who are professional investors managing other people's money. These intermediaries are expected to research prospective firms thoroughly and help them navigate their business. Presumably, these more mature firms already have accumulated some financial expertise, even hiring professional experts, and stand to benefit less from additional accounting experts. Nevertheless, as VCs are expected to be more hands-on in offering guidance and monitoring their portfolio firms, it seems plausible that the CPA effect would be more substantial for VCs.

Across investor types, we argue that the CPA effect could be more pronounced for VCs than for angel investors because VCs take a more active role in management. Yet founders may not value the accounting expertise of the VC directly, because the VC may employ accountants within the financial intermediary or have them as contacts. We therefore explore the open empirical question of whether any preference that startups have for CPA investors is higher for VC investors relative to angel investors.

H2: The relative response rate to unsolicited emails from CPA investors versus MD investors is higher for VC investors than for angel investors.

2.4 Serial founders

Our next research question centers on serial founders. We defined serial founders as entrepreneurs who are listed as founders of multiple startups in our database. Since we perform our analysis at the startup level, startups that are identified as having serial founders could be founded by serial founders on their first startup (with subsequent co-founded startups reported in the database) or by serial founders on their second (or a subsequent) startup. The latter group of serial founders is of primary importance because they have demonstrated the ability to secure funding (i.e., for their first project), presumably expanded their network throughout the process, and gained business expertise. The valuable lessons they learned from their past companies could make the inherent advantages of CPA investors somewhat redundant. Moreover, they are better positioned to rely on their network for funding and their own financial expertise.

Nevertheless, the potentially reduced preference for CPA investors may be mitigated by a typical startup's difficulty in finding experienced backers with sufficient financial resources. Serial founders are likely to have learned this during their first project. Therefore, they may be more intolerant of inexperienced investors who lack financial and accounting expertise that can be contributed to the firm. This leads us to posit that serial founders (1) pay more attention to unsolicited funding offers in general and (2) still discriminate in favor of CPA investors, compared to MD investors. Therefore, our third and final hypothesis states the following:

H3: Unsolicited emails from CPA investors garner views and website visits at a higher rate than those from MD investors, regardless of the co-founding team's startup experience.

2.5 General business expertise

One concern with comparing investors with MDs to investors with CPAs is that it could conflate the startup founders' attitudes towards accounting and general business expertise among investors. Consequently, our final research question focuses on a follow-up experiment in which we attempt to distinguish founders' demand for general business expertise versus accounting acumen. We focus on the MBA designation to capture general business expertise, as a typical MBA curriculum covers a wide range of knowledge relevant to managing businesses and aims to provide the general managerial professionalism necessary for senior management roles (Baruch and Peiperl, 2000) (in addition to the signaling value associated with an MBA degree). Although an MBA degree holder would have been exposed to accounting in their program of study, their expertise and human capital often focuses more broadly on finance, marketing, management information systems, and international business (Herrington, 2010).

We compare an investor with an MBA designation to one with a CPA certification to separate general business expertise from in-depth accounting acumen. This comparison contrasts an investor with some accounting knowledge, a graduate degree, and a broad base of business coursework to an accountant with typically at least two years of public accounting experience. Comparing a potential investor with a CPA versus an MBA allows us to isolate the marginal impact of accounting experience relative to general business expertise. We, therefore, formulate our final hypothesis:

H4: Unsolicited emails from a CPA investor garner views and website visits at a higher rate than those from an MBA investor.

3 Data and sample

3.1 Crunchbase data

Crunchbase is an online publisher devoted to tech-related news. TechCrunch, the creator and former owner of Crunchbase, is an information platform for companies

in the technology sector. Launched in 2007, Crunchbase gives subscribers insight into trends in technology and information about publicly listed and private companies. The platform provides extensive coverage of startup financing activity. According to its website, Crunchbase collects data via four major channels. First, the Crunchbase community can sign up and provide information on people and companies. They verify information via social validation and moderator reviews. Second, an in-house team is dedicated to collecting and maintaining data integrity. Third, machine learning algorithms are used by Crunchbase. Fourth, the Venture Program, a collaboration with over 3,000 VCs worldwide, provides timely updates on its portfolio firms in exchange for API access to Crunchbase data.

The chief advantage of using the Crunchbase dataset is its widespread coverage. In early 2019 (when the data for this paper was downloaded), Crunchbase had information on over 600,000 companies with more than 200,000 financing rounds involving over 40,000 investors. Raina (2021) concludes that Crunchbase is the leading data source in terms of sheer coverage of the startup ecosystem, especially in the documentation of investment rounds.

An ever-present concern with crowdsourced data, particularly with voluntary disclosure, is potential self-selection bias: people are more inclined to share favorable data from their perspective. In this case, perhaps a serial founder is more likely to disclose past ventures if she reached an IPO, or to disclose an M&A price only when she is particularly pleased with the outcome. Crunchbase uses several tools to alleviate this concern, including data verification by the in-house Crunchbase team and the Venture Program.

Academics, industry practitioners, and the media alike widely use the Crunchbase dataset. Recent citations include a case study taught in a reputable business school (Neumann, 2018), a working paper (Raina 2021), and a series of media articles in highly respected publications, including the *New York Times* (Marikar, 2019), the *Washington Post* (Dewey, 2018), and the *Wall Street Journal* (O'Reilly, 2018). As the data is widely used and routinely validated, we feel confident using it.

3.2 Crunchbase sample

Using Crunchbase's database, we construct a dataset containing firm-level observations that include all available information on each firm from Crunchbase, such as the company's name, tech specification class (in which the firm self-identifies its area of operation), location of incorporation, total amount of investment rounds, and total money raised. This firm-level dataset provides the population of startups that we can potentially target in the field experiment. Our first selection criterion is that the startup is incorporated in the US and is currently active. We then perform a more thorough cleaning of the firms in the dataset. First, we focus only on firms that were incorporated from 2006 to 2019. Second, we drop firms that do not provide an email address. We verify the authenticity of the email address using an email cleaning service that checks the validity of each email address provided by the company on Crunchbase. This stringent process reduces the email delivery failure rate during the field experiment and allows us to run our experiment robustly.

4 Randomized field experiment

4.1 RFE methodology

In the randomized field experiment, we send identical unsolicited emails to a sample of recent startups that provide their email addresses in the Crunchbase database. The emails are almost identical, with the only difference being the type of investor (angel or VC-affiliated) and the certification that the investor carries (or does not carry). Our fictitious investor bears the name "Michael Davis," a combination of the most common male first name and the seventh most common last name in the US in the 1980s.

We verify that the full name of the sender and, crucially, his professional certificate (CPA or MD, if any) are available for viewing in the recipient's mailbox tab before the email recipient chooses whether to view the content of the email message. Thus, the recipient's decision to view the email message can be thought of as the first stage of the experiment. This split-second decision likely reflects the recipient's implicit preference. The second stage of the experiment captures a more explicit form of preference by evaluating who, among the respondents that choose to view the email message, also decides to visit the website through the personalized link provided at the bottom of each email message to learn more about the fictitious investor.

We utilize the email campaign technology on WiX's platform to operationalize our field experiment and capture any differences in startups' response rates to unsolicited pitch invitations. One of the leading web development websites, WiX allows users to build webpages with relative ease, even without any knowledge of coding skills or experience in web design. More importantly for our purpose, a premium marketing-email-campaign feature on WiX allows subscribers to initiate unsolicited email campaigns and track their efficacy: (1) whether the targeted email recipients open the unsolicited email, and (2) whether the recipients subsequently click on the link inside the email.

Before initiating the email campaigns, we pre-clean the email addresses that US-based startup companies make available on Crunchbase. We use NeverBounce, a third-party email verification service routinely used by marketing professionals, to verify and validate these email addresses. The pre-cleaning process decreases the number of bounces during email campaigns. This is an essential step for typical email campaigns seeking to avoid potential suspensions by the platform. This is particularly relevant in our context since we need to ensure that the eventual bounce rate is not correlated with any specific sample characteristics.

Using WiX's marketing campaign feature, we send one unsolicited email to each startup's verified email address, indicating that our fictitious sender is interested in investing in their business. In the email's body, we invite the recipient to contact and arrange a meeting either online or face-to-face in one of the sender's offices. We randomly divide our cleaned email sample into multiple groups of target recipients. We send an identical email to each group, but with differences across groups in the following investor's dimensions: license and affiliation (VC /angel network). In subsequent, separate robustness tests, we also introduce a female investor (bearing the

name “Jessica Davis”) and an additional license that speaks to commercial experience—an attorney at law (JD).

To control for potentially different response rates to direct and intermediary investors, we associate our fictitious senders with either of two different investor groups: a fictitious angel investor group or an equally fictitious venture capital firm. We provide each investor group with a live website URL. These URLs have been primed using a search engine optimization procedure to ensure that they are among the top hits when the corresponding search terms are used on commonly used search engines.

4.2 RFE mechanics

We only differentiate between angel and VC in the name of the firm, which is displayed in the email’s name line. We describe this differentiating process in the Appendix. We give two examples to clarify the process, with the first example coming from the VC and the second from the angel investor.

Example 1:
Name: Red Grove VC
Subject: Michael Davis, CPA

Example 2:
Name: Red Grove VC
Subject: Michael Davis

All of the language in the email is identical across each of the email variations. We change each variation’s investor’s name, credential, and fund affiliation. We elect to show the name of the financial entity first and then the investor’s name. Our goal is to clarify that it is an email from a potential investor and then highlight the investor’s accounting expertise. We note that emails from financial firms often prominently display the firm’s name first. Appendix Table 9 provides a screenshot of how the email appears in the recipient’s inbox in Mac OS Mail and Gmail Webmail apps. The email label saliently displays the sender’s name, license (if any), and affiliation (e.g., VC or angel network) before the recipient opens the email and views its content. The email label provides sufficient information to identify the sender, which forms a part of the recipient’s information set when the recipient decides whether to open the email. The WiX system captures this action to monitor the performance of email campaigns.

Appendix Table 10 displays the typical emails in our campaigns, with the sender’s license prominently displayed at the top of the email. Recipients who choose to open the email can click on the hyperlink at the bottom of the email, associated with the “Check out our website” sentence or the arrow icon next to it. The hyperlink will bring the email recipient to the fictitious investor’s website. Each email contains a unique URL hyperlink. The WiX system can identify repeated clicks by the same recipient (using the same unique URL extension) and record these repeated clicks as a distinctive click.

While WiX does not explain the proprietary tracking system it employs to identify a particular email, several precise mechanisms are in place. First, the most obvious mechanism is to track the hit on each unique URL extension. Second, each email contains images (as seen in the middle of Appendix Table 10) stored on WiX servers. When the email is opened, the recipient's email server sends a request to WiX servers to download these images, allowing WiX to identify which email is opened. Third, each email may also contain a hidden image (typically 1x1 pixel) that requires almost no internet bandwidth. Opening the email would trigger a request to download that hidden image, recording the requester. These image requests allow email campaign systems to track the IP address of the requesters, facilitating the matching between an email being opened and the website being visited. In particular, even if a recipient decides not to click on the link in the email and instead visits the website after searching for our fictitious firm online, WiX is nevertheless able to record the IP address for this unique visit and connect it with the IP address requesting images visible or hidden in each email.

We perform our experiment in a single week of July 2020, sending the emails in the early hours of the morning in EDT time (corresponding to late hours of the night for PDT time) to ensure that all recipients receive the email message outside regular working hours. We collect the results over the subsequent two weeks. The WiX email campaign technology provides a detailed report of the performance of each email campaign (e.g., all emails sent by Michael Davis, MD, affiliated with our fictitious VC fund). Appendix Table 11 displays information provided in the WiX summary report for one of our campaigns, which includes the "delivery" (i.e., how many emails are delivered to the inbox), "open" (i.e., how many emails are opened by the recipients), and "visit" (i.e., the number of unique clicks to visit the website resulting from the email campaign) information.

Our email marketing campaigns consistently receive open rates of at least 30%, which is substantially higher than for typical WiX campaigns. Moreover, our campaigns enjoy visit rates of at least 5%, which is higher than WiX's average of 2%-5% across all email campaigns on the platform. This relative success of our fictitious email campaigners is particularly encouraging given our prior that (unsolicited) funding offers enjoy a different dynamic from other types of unsolicited contacts, including funding requests. Our evidence provides some prima facie support for the emergence of "outbound" origination via unsolicited or cold emails by angels and venture capitalists (e.g., Brown 2019; Hemmes, 2020). This support goes beyond the anecdotal evidence, from practitioners' experience, that cold emailing is one of the top-converting deal flow channels (Rodriguez, 2019).

Using deception-based-email studies on VCs as a benchmark, our response rates are over three times higher (e.g., Zhang and Ebrahimian, 2020), suggesting that spam/phishing distress does not drive our results. Explicitly examining our email campaign's spam and bounce rates, we find them to be relatively low compared to prior research and other email campaigns. We find no significant differences in bounce/spam rates across investors with or without a credential, accounting or medical certificates, or different names. Figure 1 shows the spam rates across the email campaign.

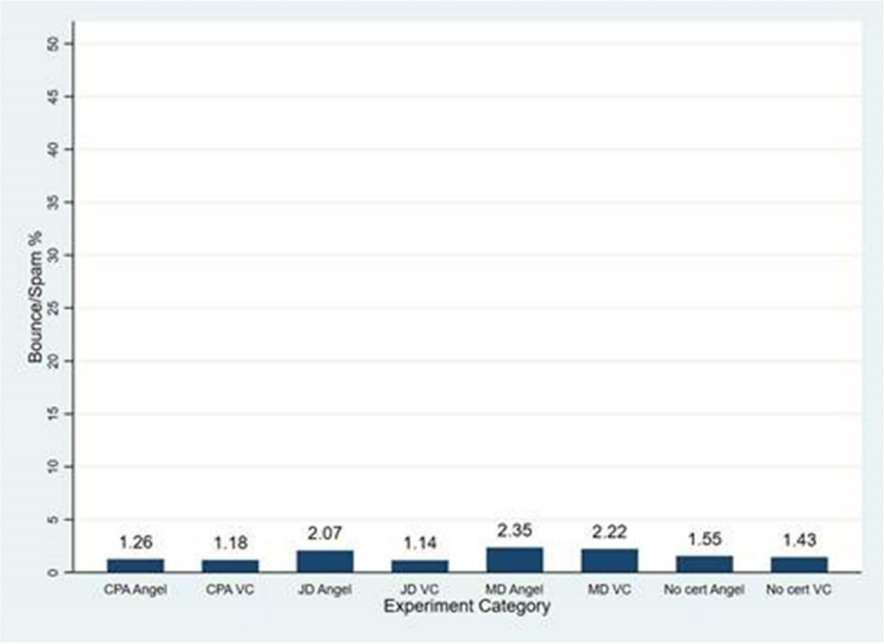


Fig. 1 Spam rates by category. The figure below depicts the bounce/spam percentages for each category of email sender in the field experiment

4.3 RFE sample

Our randomly assigned email campaigns are delivered to a total of 13,358 email accounts for our main analysis. We first perform a quick visual check of the geographical distribution of startups in our email sample versus in the more general Crunchbase sample. The analysis is reported in Fig. 2, with the fractional representation of each state in our sample on the y-axis and its corresponding representation in the Crunchbase sample on the x-axis. The observations generally line up on the 45-degree line, with some minimal oversampling in California and New York. This pattern indicates that observations from specific geographical locations do not oversaturate our RFE sample.

We start by combining our email campaigns into three broad, mutually exclusive categories based on the (fictitious) email sender license: (1) a CPA RFE sender, (2) an MD RFE sender, and (3) a No-certificate REF sender. Table 1 reports each group's average of the following observable characteristics in Crunchbase: the firm's incorporation year, the year the firm last received funding, and the total funding amount received by the firm. Table 1 also reports the firm's affiliation with medical-related industries and whether any of the firm's co-founders are serial entrepreneurs.

A critical takeaway from the summary statistics is that all groups have a large proportion (about 49%) of firms with 10 or fewer employees, increasing the chance that the unsolicited email campaign would reach a founder or executive of the firm. Many of the target recipients likely have only a few employees or consist solely of co-founders.

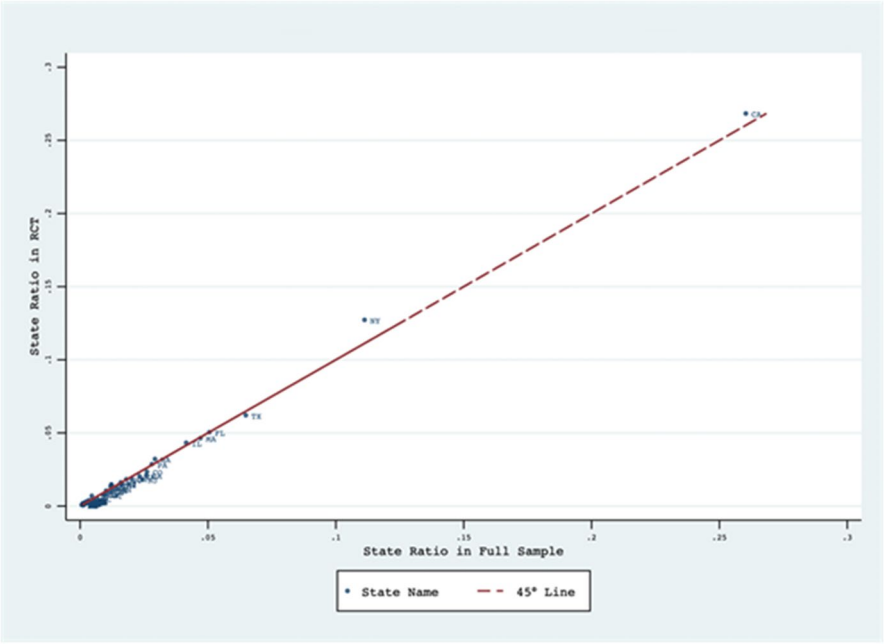


Fig. 2 Comparing US state ratio in RFE and full sample .This scatterplot depicts the representation ratio of each of the 50 states and Washington, DC, against the random sampling used in our RFE experiment, together with a 45-degree line

In general, we observe similar average characteristics across the three groups, providing an initial validation of our randomized field experiment framework.

5 RFE results

5.1 Comparing CPA versus MD

Our first analysis focuses on the differential open and visit rates of the CPA-carrying group compared with MD investors. We report the results in Table 2. In aggregate, the recipient startups open 33.99% of unsolicited emails from these RFE investors. Emails originating from CPA RFE investors are opened by 39.59% of the randomly assigned recipients, whereas only 26.67% of emails originating from MD RFE investors are opened. To facilitate subsequent discussions, we calculate the excess probability ratio by dividing the response rate for CPA RFE investors by the one for MD RFE investors and subtracting one. A positive value would indicate an over-representation of responses to CPA RFE investors. In this particular comparison, the excess probability ratio of 0.48 (=39.59%/26.67% minus 1) corresponds to emails from CPA RFE investors being 48% more likely to be opened by the recipients than emails from MD RFE investors.

Table 1 Summary statistics. The following table summarizes important statistics for our analysis.

	(1)		(2)		(3)			
	CPA Investors		MD Investors		No License Investors		Diff	Diff
	(N = 4,903)		(N = 3,750)		(N = 4,705)		(1)-(2)	(1)-(3)
	#Obs	Mean	#Obs	Mean	#Obs	Mean	(t-stat)	(t-stat)
Firm Inc. Year	2,680	2012.15	2,039	2012.01	2,546	2012.10	0.146	0.049
							(1.463)	(0.525)
Last Funding Year	1,230	2015.65	941	2015.43	1,199	2015.57	0.223	0.087
							(1.906*)	(0.817)
Total Funding	984	$18.2 Mill	785	$35 Mill	984	$19.2 Mill	-$16.8 Mill	$1 Mill
							(-1.125)	(-0.311)
Total Rounds	4,643	0.59	3,536	.63	4,462	0.61	0.015	-0.02
							(0.482)	(-0.809)
Firm in Med Ind.	4,903	0.09	3,750	0.08	4,705	0.10	0.014	-0.002
							(2.394**)	(-0.362)
Serial Founders	4,903	0.35	3,750	0.36	4,705	0.38	-0.004	-0.020
							(-0.321)	(-1.368)
Firm has $\leq$ 10 Emp	4,903	0.50	3,750	0.49	4,705	0.49	0.015	0.011
							(1.395)	(1.110)

This table reports the summary characteristics of firms in our RFE sample, segregated by whether they receive an unsolicited email from our CPA, MD, or non-licensed investors. We report the total number of observations for each group (at the top) as well as the number of observations with valid data for each characteristic next to the average value of that characteristic. We also report the difference in means along with the corresponding t-stat. "Firm in medical industry" is an indicator variable taking the value of 1 if the firm is in one of Crunchbase's health, medical beauty, or healthcare-related categories, else 0, and includes the following categories: biotech, science, medical, health, pharma, diet, wellness, fitness, supplements, medicine, beauty, nutraceutical, nutrition, genetics, therapeutics, neuroscience and hospital. "Firm has Serial Founders" is an indicator variable taking the value of 0 if the firm has no serial founders; 1 if the company has at least one serial founder, but none are on their second (or a subsequent) attempt; and 2 if the company has at least one serial founder on their second (or a subsequent) attempt. "Firm with up to 10 employees" is an indicator variable taking the value of 1 if the firm has up to 10 employees (including the co-founder), else 0

A similar pattern emerges from examining the visit rate. Startups receiving an unsolicited email from MD RFE investors visit the investors' websites at a rate of 4.88%. In contrast, CPA RFE investors' websites are visited at a rate of 7.18%, about 47% higher. These differences are meaningful in terms of magnitude, and they are statistically significant using Pearson's X^2 test at conventional statistical levels.

5.2 Medical-related industries – CPA versus MD

We observe a marked preference for CPAs across startups, but this differential preference may be reduced, eliminated, or even reversed for startups operating in medical-related industries. While a CPA license signifies accounting expertise,

Table 2 CPA versus MD full RFE sample.

Full Sample (N=8,653)				
	CPA RFE Investor	MD RFE Investor	Excess Probability Ratio (CPA/MD-1)	All Obs.
Received Email	4,903	3,750		8,653
Opens Email	1,941	1,000		2,941
(% of Receiving email)	(39.59%)	(26.67%)	0.48	(33.99%)
Visits Website	352	183		535
(% of Receiving email)	(7.18%)	(4.88%)	0.47	(6.18%)

Pearson's X^2 test [1] = 79.10 (0.000)

This table reports the full sample of observations in the RFE analyses sent from investors carrying a CPA or MD. It depicts the number of entrepreneurs who receive an email from the RFE investors carrying a CPA or MD certificate, as well as the number who open the email and visit the investor's corresponding website. The percentage of email recipients who open the email and visit the website is reported in parentheses under each corresponding number. We calculate the CPA-to-MD probability ratio of each set of corresponding percentages and subtract 1 from the ratio so that a positive value can be interpreted as an overrepresentation of responses to CPA RFE investors. We report the Pearson's X^2 test result at the bottom of the table

an MD license signifies knowledge in the medical sector. Nevertheless, if firms' preferences for CPA investors stem from the CPAs' broader, more general financial expertise, we expect to continue finding excess probability ratios for CPAs, even in the medical sector.

Upon registering in Crunchbase, a startup can self-identify its industry classification(s) from about 150 industry categories. We identify the following industries associated with the medical field: biotech, health, science, medical device, diet, wellness, fitness, supplements, medicine, beauty, nutraceutical, nutrition, lifestyle, rehabilitation, genetics, therapeutics, hospital, pharma, and neuroscience. We categorize firms that select at least one of these industry categories as medical-related and categorize the remaining firms in our sample as non-medical-related. Similar to the overall sample, each subsample displays a substantial response rate, with similar open and visit rates of around 32%-34% and 6%, respectively, across both groups.

We then repeat our formal analyses comparing response rates to CPA and MD investors separately for the medical and non-medical subsamples. We calculate the CPA/MD probability ratio in each broad industry classification and report the ratios in Table 3. Probability ratios in the non-medical-related subsample are almost identical to those in the main analysis in Table 1, i.e., 48% for the open rate and 51% for the visit rate. We observe a qualitatively similar phenomenon for startups operating in medical-related industries, as CPAs draw higher response rates for both open and website visits: 50% and 19%, respectively. The latter figures indicate that the appeal of CPAs over MD investors persists even in medical-related industries, where MDs are likely to possess specific knowledge. We repeat this analysis using alternative lists of medical-related industries and observe similar patterns in each alteration.

Table 3 CPA versus MD breakdown by medical/non-medical industries.

Panel A: Medical industries				
Full Sample (N=1,109)				
	CPA RFE Investor	MD RFE Investor	Excess Probability Ratio (CPA/MD-1)	All Obs.
Received Email	664	445		1,109
Opens Email	244	109		353
(% of Receiving email)	(36.75%)	(24.49%)	0.50	(31.83%)
Visits Website	48	27		75
(% of Receiving email)	(7.23%)	(6.07%)	0.19	(6.76%)
Panel B: Non-medical industries				
Full Sample (N=7,544)				
	CPA RFE Investor	MD RFE Investor	Excess Probability Ratio (CPA/MD-1)	All Obs.
Received Email	4,239	3,305		7,544
Opens Email	1,697	891		2,588
(% of Receiving email)	(40.03%)	(26.96%)	0.48	(34.01%)
Visits Website	304	156		460
(% of Receiving email)	(7.17%)	(4.72%)	0.51	(6.10%)

Pearson's X^2 test [1] = 10.79 (0.004)

Pearson's X^2 test [1] = 69.96 (0.000)

This table reports the full sample of observations in the RFE analyses sent from investors carrying a CPA or MD, dividing the sample by medical and non-medical industries and reporting the results in Panel A and Panel B accordingly. It depicts the number of entrepreneurs who receive an email from the RFE investors carrying a CPA or MD certificate, as well as the number who open the email and visit the investor's corresponding website. The percentage of email recipients who open the email and visit the website is reported in parentheses under each corresponding number. We calculate the CPA-to-MD probability ratio of each set of corresponding percentages and subtract 1 from the ratio so that a positive value can be interpreted as an over-representation of responses to CPA RFE investors. We report the Pearson's X^2 test result at the bottom of the table

5.3 Preference for accounting license – CPA versus no certificate

Our next analysis compares CPA RFE investors to RFE investors without any certificate. Startups may view investors with professional licenses as intellectually capable, with their track records of educational and professional attainments. These individuals are likely to possess high human capital, which may benefit the startups, but they may also act as stricter monitors, which independence-seeking founders may dislike. The latter may negatively affect the founders' preference for licensed investors and may also affect their overall preference for CPA-licensed investors with accounting-specific expertise. Comparing the startups' response rates to CPA RFE investors and otherwise identical investors without any certificate is useful in this context. This comparison reflects the total effect of the combination of (1) general professional licenses and (2) accounting-specific expertise.

We report the results of this comparison in Table 4. We observe that startups view emails from CPAs and visit the CPAs' website at 15%-16% higher rates than their response to communications from non-certificate-holding investors. These lower excess probability ratios relative to our main results above indicate that the CPA certificate is valuable when engaging in unsolicited investing pitches, despite the potentially negative effect of professional licenses in general. A back-of-the-envelope calculation of the probability ratio for MD versus no-certificate investors indicates that there is a negative preference against MD investors, consistent with the possibility that founders view (some) licensed investors as potential threats to their independence—without the complementing positive impact associated with extensive human capital. One interpretation is that professional licenses do not add to the credibility of the potential investor. Combined with the results in sections 5.1 and 5.2, the results in Table 4 indicate that startups have a positive attitude toward CPAs and a negative attitude toward MDs. We consider another potential counterfactual, MBAs, in section 6.

The Appendix (Table 12) provides additional results from a robustness test measuring the response rates when the fictitious RFE investor carries a different professional certificate that potentially signals some commercial experience: JD. Though not financially trained, attorneys are legal experts with the ability to facilitate the formation of corporate entities and draft an emerging startup's by-laws, term sheet agreements, and employment contracts. We, therefore, use this professional accreditation as an additional test to measure the excess appeal of commercially experienced experts. We find that a JD license is somewhat more attractive to founders than investors without any certificate, particularly in terms of "view" rates, which are 21% higher. It is important to note that, unlike CPA investors, JD investors do not experience a higher website visit rate, relative to investors without any certificate.

Table 4 CPA versus no-certificate full RFE sample.

Full Sample (N=9,608)

	CPA RFE Investor	No-Cert RFE Investor	Excess Probability Ratio (CPA/No-Cert-1)	All Obs.
Received Email	4,903	4,705		9,608
Opens Email	1,941	1,594		3,535
(% of Receiving email)	(39.59%)	(33.88%)	0.16	(36.79%)
Visits Website	352	293		645
(% of Receiving email)	(7.18%)	(6.23%)	0.15	(6.71%)

Pearson's X^2 test [1] = 15.60 (0.000)

This table reports the full sample of observations in the RFE analyses for our female investor group. It depicts the number of entrepreneurs who receive an email from the RFE investors carrying a CPA or MD certificate, as well as the number who open the email and visit the investor's corresponding website. The percentage of email recipients who open the email and visit the website is reported in parentheses under each corresponding number. We calculate the CPA-to-MD probability ratio of each set of corresponding percentages and subtract 1 from the ratio so that a positive value can be interpreted as an overrepresentation of responses to CPA RFE investors. We report the Pearson's X^2 test result at the bottom of the table

5.4 Robustness – gender effect?

We also perform another robustness test to examine whether the preference for CPAs holds across gender lines. As recent research demonstrates that professionally accredited female investors would be better off not disclosing their certificates in the deal sourcing stage, this extension is not trivial, as founders discriminate against them (Gefen et al. 2022). In other words, female investors, who founders already disregard, receive an even further discount (compared to their male counterparts) when they carry professional licenses. Moreover, as over 90% of VC investors are men (Gompers and Wang, 2017; Howell and Nanda 2019), the addition of female investors to our research design is likely to introduce another potential factor to our identification. This gender-related analysis results in a joint hypothesis: we are no longer merely testing the notion of accounting certification and gender difference and the differential impact of certification for different genders.

To avoid these potential issues, we repeat our main CPA/MD test using only a female name as our fictitious investor. We report the results of this analysis in Table 5. We observe a similar pattern to those experienced by male investors (in Table 2). Recipient startups choose to view correspondence from female CPA holders at a rate 38% higher than correspondence from female MDs, and visit female CPA websites at a rate 32% higher. This analysis provides further evidence that disclosure of financial expertise is useful even for female investors, who are typically discriminated against in deal sourcing and are heavily underrepresented in the VC industry.

5.5 Analyses by investor affiliation

To assess whether startups' response rates differ by investors' affiliation, our research design randomly assigns one of the following two affiliations to the RFE fictitious

Table 5 Robustness test – CPA versus MD female investor.

Full Sample (N=9,769)

	CPA RFE Investor	MD RFE Investor	Excess Probability Ratio (CPA/MD-1)	All Obs.
Received Email	4,878	4,891		9,769
Opens Email	1,386	1,003		2,389
(% of Receiving email)	(28.41%)	(20.51%)	0.38	(24.45%)
Visits Website	223	169		535
(% of Receiving email)	(4.57%)	(3.46%)	0.32	(4.01%)

Pearson's X^2 test [1] = 50.44 (0.000)

This table reports the full sample of observations in the RFE analyses sent from female investors carrying a CPA or MD. It depicts the number of entrepreneurs who receive an email from the RFE investors carrying a CPA or MD certificate and the number who open the email and visit the investor's corresponding website. The percentage of email recipients who open the email and visit the website is reported in parentheses under each corresponding number. We calculate the CPA-to-MD probability ratio of each set of corresponding percentages and subtract 1 from the ratio so that a positive value can be interpreted as an overrepresentation of responses to CPA RFE investors. We report the Pearson's X^2 test result at the bottom of the table

investor that we use to send emails to startups: (1) an angel investor group or (2) a VC firm. Angel investors can be described as direct investors that back startups on their own accounts and primarily target younger startups in their pre-seed rounds. An overrepresentation of affluent backers—many of whom lack relevant financial experience or skill in picking suitable projects and are looking to be silent partners in promising businesses—typically characterizes these stages. On the other hand, one might expect that angel investors with a CPA license would signal to novice founders that they are equipped to help with the business side of things—and would command a higher response rate precisely because of this impromptu environment.

Alternatively, startups looking for a VC investor may no longer view the capital component as necessary. With an oversupply of capital chasing not too many promising businesses (Yuan, 2017), founders may look at the VC investors' network (Hochberg et al., 2007) or reputation, skill, and counsel (Sørensen, 2007) as the primary criteria for VC selection. Investors who can demonstrate commercial experience would be more valuable in this case, as they are more likely to understand the business side of the venture guide startups and have more extensive networks.

We divide each of our CPA and MD samples into emails sent from a VC and an angel investor, respectively. We report the comparisons among these subsamples in Table 6. We observe that unsolicited emails from angel investors draw higher attention when they come from CPAs as opposed to MDs (13% higher for email opening and 1% higher for website visits). These differences pale in comparison to the gaps when a VC investor sends the email. In this group, an email from a CPA-carrying investor is associated with an excess probability ratio of 76% in email views and 96% in website visits.

Our sample contains startups of varying ages. Older startups in the Crunchbase dataset may be more interested in late-stage financing relative to their younger counterparts. While the multivariate tests include startup age, arguably the older startups in the sample could drive the differential results between VCs and angel investors. In addition, as noted in the introduction, another concern is that spam filters are biased towards CPA designations, which are orthogonal to startup age due to our randomization.

Figure 3A displays the open email rate by the startup's year of incorporation. This figure shows a steady rise in the open rates by the startup's year of incorporation, which is inconsistent with the spam filter hypothesis explaining the patterns of startups' preference for CPAs. Figure 3B shows these results separately for both VC and angel investors. Again, we find that the open rate increases by year of incorporation for both the VC and angel investors. Formal statistical tests for firms that are incorporated during the study's first and final four years show that the results in Fig. 3A and B are statistically different at the 1% significance level.

5.6 Founders' learning

We assess startup heterogeneity in the last part of our analyses. Having documented strong startups' preferences for commercially experienced, business-savvy investors, we explore whether these preferences are uniformly distributed across startups. One

Table 6 CPA versus MD divided by investor type.

Panel A: Angel investor				
Full Sample (*N*=3,771)				
	CPA RFE Investor	MD RFE Investor	Excess Probability Ratio (CPA/MD-1)	All Obs.
Received Email	2,453	1,318		3,771
Opens Email	1,013	479		1,492
(% of Receiving email)	(41.30%%)	(36.34%)	0.13	(39.57%)
Visits Website	182	97		279
(% of Receiving email)	(7.42%)	(7.36%)	0.01	(7.40%)
Panel B: VC investor				
Full Sample (*N*=4,882)				
	CPA RFE Investor	MD RFE Investor	Excess Probability Ratio (CPA/MD-1)	All Obs.
Received Email	2,450	2,432		4,882
Opens Email	928	521		1,449
(% of Receiving email)	(37.88%)	(21.42%)	0.76	(29.68%)
Visits Website	170	86		256
(% of Receiving email)	(6.94%)	(3.54%)	0.96	(5.24%)

Pearson's X^2 test [1] = 4.93 (0.084)

Pearson's X^2 test [1] = 86.94 (0.000)

This table reports the full sample of observations in the RFE analyses sent from investors carrying a CPA or MD, dividing the sample by emails sent from angel or VC investors and reporting the results in Panel A and Panel B accordingly. It depicts the number of entrepreneurs who receive an email from the RFE investors carrying a CPA or MD certificate and the number who open the email and visit the investor's corresponding website. The percentage of email recipients who open the email and visit the website is reported in parentheses under each corresponding number. We calculate the CPA-to-MD probability ratio of each set of corresponding percentages and subtract 1 from the ratio so that a positive value can be interpreted as an over-representation of responses to CPA RFE investors. We report the Pearson's X^2 test result at the bottom of the table

channel where we may expect to see a variation in startups' attraction to different investor backgrounds is the founder's experience. We measure the founder's experience based on whether they have founded another startup in the past. Nahata (2019) reports that founders with more entrepreneurial experience are more likely to secure funding regardless of past successes or failures.

We examine repeat founders' taste for unsolicited funding in general and across different license-carrying investors. We start by dividing our startup sample into three mutually exclusive groups: (1) firms without serial founders, (2) firms with at least one serial founder on their first attempt, and (3) firms with at least one serial founder with a prior attempt or attempts. These three groups include all possible co-founder compositions and differentiate between completely novice teams (as least as they appear on our dataset)—segregated by whether at least one co-founder becomes a serial entrepreneur in the future—and teams with at least one co-founder working on their second or further projects.

In Table 7, we analyze the overall response rate among the three groups. Startups without serial founders have the lowest view (38.48%) and visit (6.59%) rates. In contrast, startups with serial founders on their second or subsequent projects have the highest view (44.81%) and visit (10.08%) rates. Startups whose co-founders go on to found other projects in our sample are in between the other two groups. We find that these results serve to validate our experiment internally, as startups with more experienced co-founding teams are more likely to respond to our RFE email, indicating that the more experienced teams are more open minded about unsolicited funding opportunities, perhaps due to the challenges they experienced in finding supportive investors for their previous project.

We then turn to the differences in email views and website visits across CPA and MD investors. All three startup groups prefer CPA investors over MD investors. Moreover, we observe that startups founded by novice founders demonstrate a stronger preference for CPAs, with an excess probability ratio of 0.51 for both view and visit rates, which is slightly higher than the 0.42 and 0.32 ratios displayed by startups founded by serial founders on their second or subsequent attempts. This pattern suggests that the demand for commercially experienced investors is still strong, even for founder teams that can foreseeably rely on their own entrepreneurial experiences.

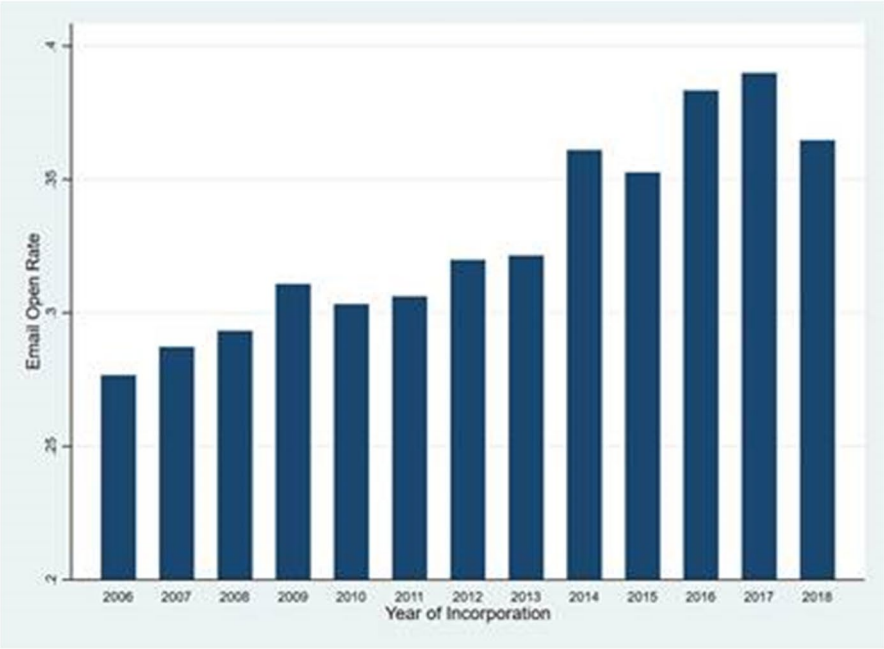
6 Follow-up experiment

To test hypothesis 4, we conduct a follow-up experiment with a new sample. This follow-up experiment aims to compare accounting and general business acumen and therefore focuses on an alternative comparison group for our CPA investor: an MBA investor. Since our initial experiment reveals that young startups provide the highest response rates (especially to approaches from angel investors), we design our experiment for hypothesis 4 to focus on recently incorporated startups. We perform the experiment on startups recently added to the Crunchbase dataset that were incorporated from 2018 to 2021. After dropping firms without working email addresses, we randomly assign these young startups to receive an unsolicited email from either a CPA- or MBA-credentialed angel investor.

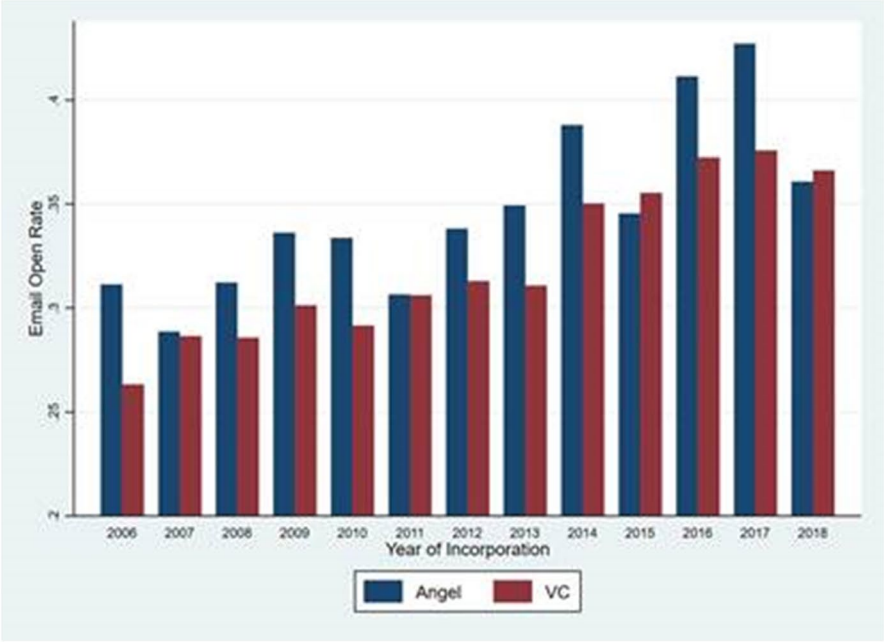
We sent an unsolicited email to each startup in this follow-up sample in January 2023. Panel A of Table 8 reports the summary statistics for this follow-up sample. Compared to our primary sample, these firms are younger and have secured less financing. As such, it is not surprising that the follow-up experiment results in a higher email open rate (49.3% versus 34%). However, we also observe a slightly lower website visit rate (5.72% versus 6.18%), which is unexpected.

Panel B reports the results of the follow-up experiment in testing hypothesis 4. The open email rate for the CPA investor is 52.5%, which is substantially higher than the corresponding rate of 46.1% for the MBA investor. Unsolicited emails from the CPA investor have a 14% higher likelihood of being opened, relative to those from the MBA investor. We find a similar pattern for website visits, with the CPA investor having a 23% higher likelihood of receiving a website visit, compared to

A) *Open email rate*



B) *VCs versus angels*



◂ **Fig. 3** Open email rates by startup year of incorporation These figures depict the average rate of email opening by the startup's year of incorporation. Panel A shows the open rates for each incorporation year for the full sample, whereas Panel B divides the sample to VCs versus angels

the MBA investor. Mirroring the results in the main experiment, in which they favor accountants over investors without a credential or with an MD, technology startups are also more likely to respond to a CPA investor than one with an MBA credential. We therefore conclude that accounting acumen is valued beyond the general business expertise associated with an MBA.

7 Conclusion

Practicing accountants and academics alike fret over the future of the accounting profession. An extensive literature implies that investors care about accounting expertise in firms, yet we know little about whether managers or founders care about the accounting expertise of investors. We conduct a randomized field experiment to understand next-generation business leaders' perceptions of accountants and to discover new paths for these financial experts. In this experiment, we misrepresent ourselves as startup investors looking for investment opportunities in promising businesses across the US. We send identical and unique trackable emails to 13,358 startups, posing as potential investors with or without a CPA title. We randomly vary the emails by the investor's type—VC or angel investor—and by the license of the investor sending the message—CPA, MD, or no certificate. This unique research design allows us to record who among the recipients chooses to open the email and subsequently visit our fictitious investor's website.

Our results demonstrate that startups have a consistent and robust demand for investors with accounting expertise (as indicated by the investors' CPA title). We find that CPAs attract founders at an excess probability ratio of 47%-48%, compared to a fictitious investor carrying an MD license. This pattern persists even in medical-related industries, indicating that the taste for CPAs is not driven by specific industry demand. The accounting expertise signaled by the CPAs is beneficial throughout our sample.

We perform two additional tests to better understand the channel for this preference. We first look at VC and angel investors to examine whether startups' attitude towards CPA investors changes depending on the investor type. We find that startups' preference for CPAs dramatically rises when the email comes from a VC investor, indicating that accounting expertise is even more beneficial when a potential investor acts in the capacity of a professional intermediary.

Second, we examine startups with different experience levels: startups with novice co-founding teams versus startups with at least one co-founder on their second project. The latter group generally displays higher response rates in terms of both email views and website visits, suggesting that more experienced founding teams are more sensitive to challenges in finding supportive investors and, therefore, more open to unsolicited funding opportunities. We further document

Table 7 CPA versus MD divided by founder type.

Panel A: No serial founders

Full Sample (N=6,695)

	CPA RFE Investor	MD RFE Investor	Excess Probability Ratio (CPA/MD-1)	All Obs.
Received Email	3,794	2,901		6,695
Opens Email	1,460	738		2,198
(% of Receiving email)	(38.48%)	(25.44%)	0.51	(32.83%)
Visits Website	250	126		376
(% of Receiving email)	(6.59%)	(4.34%)	0.51	(5.62%)

Panel B: At least 1 serial founder on first attempt

Full Sample (*N*=802)

	CPA RFE Investor	MD RFE Investor	Excess Probability Ratio (CPA/MD-1)	All Obs.
Received Email	464	338		802
Opens Email	192	101		293
(% of Receiving email)	(41.38%)	(29.88%)	0.38	(36.53%)
Visits Website	37	18		55
(% of Receiving email)	(7.97%)	(5.33%)	0.49	(6.86%)

Panel C: At least 1 serial founder on second attempt

Full Sample (*N*=1,156)

	CPA RFE Investor	MD RFE Investor	Excess Probability Ratio (CPA/MD-1)	All Obs.
Received Email	645	511		1,156
Opens Email	289	161		450
(% of Receiving email)	(44.81%)	(31.51%)	0.42	(38.93%)
Visits Website	65	39		104
(% of Receiving email)	(10.08%)	(7.63%)	0.32	(9.00%)

Pearson's X^2 test [1] = 65.13 (0.000)

Pearson's X^2 test [1] = 5.34 (0.069)

Pearson's X^2 test [1] = 9.61 (0.008)

This table reports the full sample of observations in the RFE analyses sent from investors carrying a CPA or MD. It depicts the number of entrepreneurs who receive an email from the RFE investors carrying a CPA or MD certificate and the number who open the email and visit the investor's corresponding website. The percentage of email recipients who open the email and visit the website is reported in parentheses under each corresponding number. We calculate the CPA-to-MD probability ratio of each set of corresponding percentages and subtract 1 from the ratio so that a positive value can be interpreted as an overrepresentation of responses to CPA RFE investors. We report the Pearson's X^2 test result at the bottom of the table

Table 8 CPA versus MBA sample.

Panel A: Summary statistics

	(1)		(2)		(3)
	CPA Investors (N = 1,713)		MBA Investors (N = 1,730)		Diff (1)-(2)
	#Obs	Mean	#Obs	Mean	(t-stat)
Firm Inc. Year	1,713	2018.53	1,730	2018.55	-0.02
					(0.713)
Last Funding Year	952	2019.87	945	2019.74	0.1333
					(1.168)
Total Rounds	953	1.9	945	2.01	-0.043
					(-0.721)

Panel B: CPA versus MBA RFE

Full Sample (N=3,443)

	CPA	MBA	Excess Probability	All
	RFE Investor	RFE Investor	Ratio (CPA/MBA-1)	Obs.
Received Email	1,713	1,730		3,443
Opens Email	899	798		1,697
(% of Receiving email)	(52.48%)	(46.13%)	0.14	(49.29%)
Visits Website	108	89		197
(% of Receiving email)	(6.30%)	(5.14%)	0.23	(5.72%)

Pearson's X^2 test [1] = 5.03 (0.081)

This table reports the results from a follow-up experiment comparing investors with CPA and MBA credentials. Panel A summarizes important statistics for the sample of startups involved in the follow-up experiment, which is segregated by whether the startups receive an unsolicited email from an RFE investor with a CPA or an MBA credential. We report the total number of observations for each group (at the top) as well as the number of observations with valid data for each characteristic (next to the average value of that characteristic). Panel B reports the percentage of email recipients who open the email and visit the website in parentheses under each corresponding number of such recipients. We calculate the CPA-to-MBA probability ratio of each set of corresponding percentages and subtract 1 from the ratio so that a positive value can be interpreted as an overrepresentation of responses to a CPA-credentialed investor, relative to an MBA-credentialed investor. We report the Pearson's X^2 test result at the bottom of the panel

that the CPA/MD excess probability ratios are still relatively high, between 32% and 42%, for startups with a more experienced founding team.

Finally, we conduct a follow-up experiment that compares investors with general business knowledge (MBAs) to those with in-depth accounting expertise (CPAs). Again, we find that technology startups favor accounting expertise. Taken together, our randomized field experiments reflect the positive attitude that founders of startup firms have towards accountants. Startups display a strong preference for investors with accounting expertise.

Appendix

Table 9 Email views by recipients. These panels demonstrate how the main variations of the experiment will be seen by each startup, depending on whether the startup uses email programs like Mac OS Mail app and Gmail Webmail app. The relevant portion is circled in blue. In this panel, we use alternative fictitious names of the VC (Red Grove) and angel group (Blue Mountain) for illustrative purposes.

Panel A: Email labels as viewed in horizontal programs	
Name Field:	Subject Field:
Red Grove VC	Michael Davis
Blue Mountain Angel Group	Michael Davis
Red Grove VC	Michael Davis, CPA
Blue Mountain Angel Group	Michael Davis, CPA
Red Grove VC	Michael Davis, MD
Blue Mountain Angel Group	Michael Davis, MD
Red Grove VC	Michael Davis, JD
Blue Mountain Angel Group	Michal Davis, JD
Panel B: Email labels as viewed in vertical programs	
Red Grove VC Michael Davis	
Blue Mountain Angel Group Michael Davis	
Red Grove VC Michael Davis, CPA	
Blue Mountain Angel Group Michael Davis, CPA	
Red Grove VC Michael Davis, MD	
Blue Mountain Angel Group Michael Davis, MD	
Red Grove VC Michael Davis, JD	
Blue Mountain Angel Group Michael Davis, JD	

Table 10 Email campaign example. This is an example of one of the emails sent as part of the RFE. The "Check out our website" sentence and arrow icon adjacent to it are links to the investor's company website. By clicking on either one, the recipient will open the main page of the website. This action is recorded by WiX and counts as a unique click. Clicking more than once or independently entering the website again from the same IP number will *not* count as additional clicks.

Michael Davis

Our team identified your startup as an interesting investment opportunity, and we would like to invite you to set up a meeting with us at one of our offices or online. We are looking to extend our portfolio companies and will be taking in pitches on a rolling basis. Please feel free to read about our firm, and contact us either via email or through the 'Contact us' option on the website.

Red Grove Team

Check out our website

Michael Davis

Our team identified your startup as an interesting investment opportunity, and we would like to invite you to set up a meeting with us at one of our offices or online. We are looking to extend our portfolio companies and will be taking in pitches on a rolling basis. Please feel free to read about our firm, and contact us either via email or through the 'Contact us' option on the website.

Blue Mountain Team

Check out our website

Michael Davis, CPA

Our team identified your startup as an interesting investment opportunity, and we would like to invite you to set up a meeting with us at one of our offices or online. We are looking to extend our portfolio companies and will be taking in pitches on a rolling basis. Please feel free to read about our firm, and contact us either via email or through the 'Contact us' option on the website.

Red Grove Team

Check out our website

Michael Davis, CPA

Our team identified your startup as an interesting investment opportunity, and we would like to invite you to set up a meeting with us at one of our offices or online. We are looking to extend our portfolio companies and will be taking in pitches on a rolling basis. Please feel free to read about our firm, and contact us either via email or through the 'Contact us' option on the website.

Blue Mountain Team

Check out our website

Table 11 Email campaign result example. Below are the reported results from one email campaign. WiX's dashboard reports the delivery, open, and click rates of the emails sent, as well as the device on which they were opened.

Campaign statistics
Michael Davis, CPA
Blue Mountain Angel Group

Delivery statistics

Delivered	Opened	Clicked
2450	890	165
Delivery Rate 99%	*Open Rate 36%*	*Click Rate 7%*

Bounced: 29 | Spam Complaints: 0

Unique clicks by device

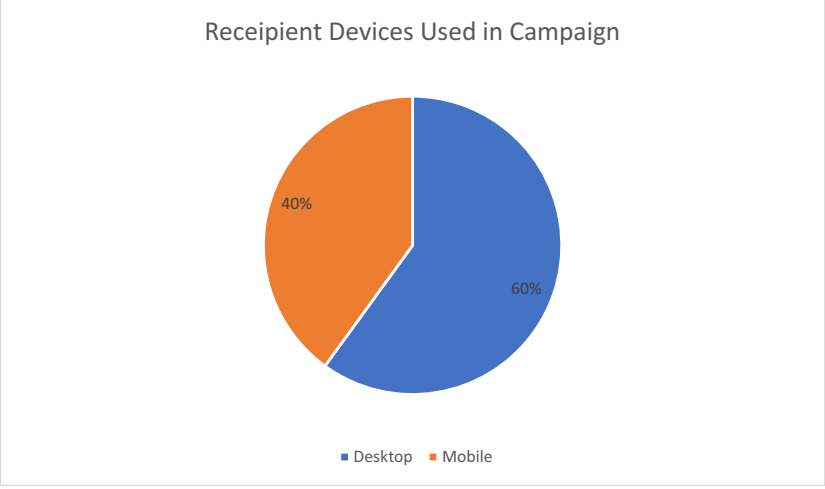


Table 12 Attorney versus CPA/no certificate, robustness test.

Panel A: JD versus no-cert

Full Sample (*N*=9,780)

	JD RFE Investor	No-Cert RFE Investor	Excess Probability Ratio (J.D./No-Cert-1)	All Obs.
Received Email	4,877	4,705		9,582
Opens Email	2,006	1,594		3,600
(% of Receiving email)	(41.13%)	(33.88%)	0.21	(37.57%)
Visits Website	305	293		598
(% of Receiving email)	(6.25%)	(6.23%)	0.00	(6.24%)

Panel B: CPA versus JD

Full Sample (*N*=9,780)

	CPA RFE Investor	JD RFE Investor	Excess Probability Ratio (CPA/J.D.-1)	All Obs.
Received Email	4,903	4,877		9,780
Opens Email	1,941	2,006		3,947
(% of Receiving email)	(39.59%)	(41.13%)	-0.04	(40.36%)
Visits Website	352	305		657
(% of Receiving email)	(7.18%)	(6.25%)	0.14	(6.72%)

Pearson's X^2 test [1] = 30.81 (0.000)

Pearson's X^2 test [1] = 7.13 (0.028)

This table reports the full sample of observations in the RFE analyses sent from investors not carrying a certificate versus an attorney (JD) in Panel A and from a CPA versus a JD in Panel B. It depicts the number of entrepreneurs who receive an email from the RFE investors carrying a CPA, JD, or no certificate, as well as the number who open the email and visit the investor's corresponding website. The percentage of email recipients who open the email and visit the website is reported in parentheses under each corresponding number. We calculate each set of corresponding percentages' CPA-to-JD or JD-to-No cert probability ratio and subtract 1 from the ratio. A positive value can be interpreted as an overrepresentation of responses to CPA (or JD) RFE investors. We report the Pearson's X^2 test result at the bottom of the table

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